

## LONG REACH UNAMPLIFIED OPTICAL SONET/SDH CARD

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5

### Abstract of the Disclosure

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An assembly, method, and device for high-speed optical format data transmission includes a printed circuit board containing mounting locations for electrical components, optical components, and a heatsink device. A tray may also be mounted on the printed circuit board to route optical fiber to various components. The heatsink is positioned at a predetermined height above the printed circuit board so that it physically contacts the electrical and optical components that require cooling. The printed circuit board may include one or more openings in which one or more of the electrical or optical components that are significantly taller than the other components are embedded. The heatsink may also include one or more openings in which one or more of the taller electrical or optical components are positioned. Additional compliant heat conductive material may be placed between the top of one or more electrical or optical components and the heatsink when the components are not as high at the position of the heatsink. Material may also be removed from the bottom of one or more portions of the heatsink to accommodate one or more of the electrical or optical components that are slightly higher than the position of the heatsink. The layout of the printed circuit board assembly includes positioning the electrical and optical components for receiving data on one section of the printed circuit board, while the electrical and optical components for transmitting data are positioned on another section of the printed circuit board. The electrical and optical components that are sensitive to temperature variation are positioned near the portion of the printed circuit board that receives the greatest amount of cooling.

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